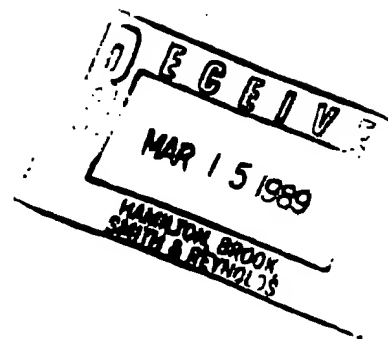


TO: PATRICIA GRANAHAN  
HAMILTON, BROOK, SMITH & REYNOLDS  
TWO MILITIA DR.  
LEXINGTON, MA 02173-1799



UNITED STATES PATENT AND TRADEMARK OFFICE  
NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT DIVISION OF THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE MICROFILM COPY IS AVAILABLE AT THE U.S. PATENT AND TRADEMARK OFFICE ON THE REEL AND FRAME NUMBER REFERENCED BELOW. A DIGEST OF THE DOCUMENT HAS ALSO BEEN MADE AND APPEARS IN THE OFFICE'S RECORDS AS SHOWN:

ASSIGNOR: 001 GOODCHILD, JOHN  
ASSIGNOR: 002 ZAMECNIK, PAUL C.  
ASSIGNOR: 003 AGRAWAL, SUDHIR

DOC DATE: 09/28/88  
DOC DATE: 09/28/88  
DOC DATE: 09/28/88

RECORDATION DATE: 10/06/88 NUMBER OF PAGES 003 REEL/FRAME 4955/0974

DIGEST: ASSIGNMENT OF ASSIGNORS INTEREST

ASSIGNEE: 501 WORCESTER FOUNDATION FOR EXPERIMENTAL BIOLOGY, 222 MAPLE AVE., SHREWSBURY, MA 01545 A CORP. OF MA

SERIAL NUMBER 7-160574 FILING DATE 02/26/88  
PATENT NUMBER ISSUE DATE 00/00/00

TITLE OF INVENTION: INHIBITION OF HTLV-III BY EXOGENOUS OLIGONUCLEOTIDES

INVENTOR: 001 GOODCHILD, JOHN  
INVENTOR: 002 ZAMECNIK, PAUL C.  
INVENTOR: 003 AGRAWAL, SUDHIR

JointAssignment

WHEREAS, we, John Goodchild, Paul C. Zamecnik and Sudhir Agrawal have invented a certain improvement in INHIBITION OF HTLV-III BY EXOGENOUS OLIGONUCLEOTIDES described in an application for Letters Patent of the United States, Serial No. 160,574, filed February 26, 1988.

WHEREAS, The Worcester Foundation for Experimental Biology (hereinafter "ASSIGNEE"), a corporation organized and existing under the laws of the Commonwealth of Massachusetts, and having a usual place of business at 222 Maple Avenue, Shrewsbury, Massachusetts 01545 desires to acquire an interest therein in accordance with agreements duly entered into with us;

NOW, THEREFORE, to all whom it may concern be it known that for and in consideration of the said agreements and of other good and valuable consideration, the receipt of which is hereby acknowledged, we have sold, assigned and transferred and by these presents do hereby sell, assign and transfer unto said ASSIGNEE, its successors, assigns and legal representatives, the entire right, title and interest in and throughout the United States of America, its territories and all foreign countries, in and to the said invention as described in said application, together with the entire right, title and interest in and to the said application and such Letters Patent as may issue thereon; said invention, application and Letters Patent to be held and enjoyed by said ASSIGNEE for its own use and behalf and for its successors, assigns and legal representatives, to the full end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held by us had this assignment and sale not been made; we hereby convey all rights arising under or pursuant to any and all international agreements, treaties or laws relating to the protection of industrial property by filing any such applications for Letters Patent. We hereby acknowledge that this assignment, being of the entire right, title and interest in and to said invention, carries with it the right in ASSIGNEE to apply for and obtain from competent authorities in all countries of the world any and all Letters Patent by attorneys and agents of ASSIGNEE selection and the right to procure the grant of all such Letters Patent to

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ASSIGNEE for its own name as assignee of the entire right, title and interest therein.

AND, we hereby further agree for ourselves and our executors and administrators to execute upon request any other lawful documents and likewise to perform any other lawful acts which may be deemed necessary to secure fully the aforesaid invention to said ASSIGNEE, its successors, assigns and legal representatives, but at its or their expense and charges, including the execution of applications for patents in foreign countries, and the execution of substitution, reissue, divisional or continuation applications and preliminary or other statements and the giving of testimony in any interference or other proceeding in which said invention or any application or patent directed thereto may be involved.

AND, we do hereby authorize and request the Commissioner of Patents of the United States to issue such Letters Patent as shall be granted upon said application or applications based thereon to said ASSIGNEE, its successors, assigns, and legal representatives;

IN TESTIMONY WHEREOF, we have hereunto set our hands and affixed our seals the date set forth below.

Inventor: John Goodchild  
John Goodchild

Commonwealth of  
Massachusetts  
County of Norfolk

) ss.:  
)

Subscribed and sworn to before me, by the above-named  
John Goodchild this 7 day of September, 1988.

William J. Cummings  
Notary Public

MY COMMISSION EXPIRES JULY 18, 1991

-3-

Inventor: Paul C. Zamecnik  
Paul C. ZamecnikCommonwealth of  
Massachusetts  
County of Worcester) ss.:  
)Subscribed and sworn to before me, by the above-named  
Paul C. Zamecnik this 28th day of September, 1988.William J. Cummings  
Notary Public

MY COMMISSION EXPIRES JULY 18, 1991

Inventor: Sudhir Agrawal  
Sudhir AgrawalCommonwealth of  
Massachusetts  
County of Worcester) ss.:  
)Subscribed and sworn to before me, by the above-named  
Sudhir Agrawal this 28th day of September, 1988.William J. Cummings  
Notary Public

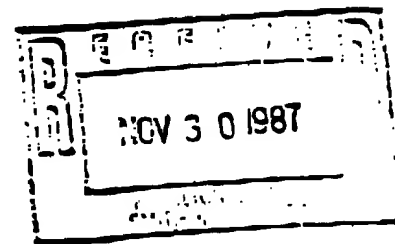
MY COMMISSION EXPIRES JULY 18, 1991



ASSISTANT SECRETARY AND  
OF PATENTS AND TRADEMARK  
Washington, D.C. 20231

MISS OVER

TO: PATRICIA GRANAHAN  
HAMILTON, BROOK, SMITH & REYNOLDS  
TWO MILITIA DRIVE  
LEXINGTON, MA 02173



UNITED STATES PATENT AND TRADEMARK OFFICE  
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ASSIGNOR: 001 GOODCHILD, JOHN  
ASSIGNOR: 002 ZAMECNIK, PAUL C.

DOC DATE: 07/07/87  
DOC DATE: 07/07/87

RECORDATION DATE: 07/10/87 NUMBER OF PAGES 002 REEL/FRAME 4742/0217

DIGEST: ASSIGNMENT OF ASSIGNORS INTEREST

ASSIGNEE: 501 WORCESTER FOUNDATION FOR EXPERIMENTAL BIOLOGY, THE. 222 MAPLE AVE., SHRESBURY, MA 01545. A CORP OF MA

SERIAL NUMBER 7-071894 FILING DATE 07/10/87  
PATENT NUMBER ISSUE DATE 00/00/00

TITLE OF INVENTION: INHIBITION OF HTLV-III BY EXOGENOUS OLIGONUCLEOTIDES

INVENTOR: 001 GOODCHILD, JOHN  
INVENTOR: 002 ZAMECNIK, PAUL C.

JointAssignment

WHEREAS, we, John Goodchild and Paul C. Zamecnik have invented a certain improvement in Inhibition of HTLV-III By Exogenous Oligonucleotides described in an application for Letters Patent of the United States, executed by us of even date herewith and about to be filed in the United States Patent Office; and

WHEREAS, The Worcester Foundation for Experimental Biology (hereinafter "ASSIGNEE") a corporation organized and existing under the laws of the Commonwealth of Massachusetts, and having a usual place of business at 222 Maple Avenue, Shrewsbury, Massachusetts 01545 desires to acquire an interest therein in accordance with agreements duly entered into with us;

NOW, THEREFORE, to all whom it may concern be it known that for and in consideration of the said agreements and of other good and valuable consideration, the receipt of which is hereby acknowledged, we have sold, assigned and transferred and by these presents do hereby sell, assign and transfer unto said ASSIGNEE, its successors, assigns and legal representatives, the entire right, title and interest in and throughout the United States of America, its territories and all foreign countries, in and to the said invention as described in said application, together with the entire right, title and interest in and to the said application and such Letters Patent as may issue thereon; said invention, application and Letters Patent to be held and enjoyed by said ASSIGNEE for its own use and behalf and for its successors, assigns and legal representatives, to the full end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held by us had this assignment and sale not been made; we hereby convey all rights arising under or pursuant to any and all international agreements, treaties or laws relating to the protection of industrial property by filing any such applications for Letters Patent. We hereby acknowledge that this assignment, being of the entire right, title and interest in and to said invention, carries with it the right in ASSIGNEE to apply for and obtain from competent authorities in all countries of the world any and all Letters Patent by attorneys and agents of ASSIGNEE selection and the right to procure the grant of all such Letters Patent to ASSIGNEE for its own name as assignee of the entire right, title and interest therein.

AND, we hereby further agree for ourselves and our executors and administrators to execute upon request any other lawful documents and likewise to perform any other lawful acts which may be deemed necessary to secure fully the aforesaid invention to said ASSIGNEE, its successors, assigns and legal representatives, but at its or their expense and charges, including the execution of applications for patents in foreign

Joint

-2-

countries, and the execution of substitution, reissue, divisional or continuation applications and preliminary or other statements and the giving of testimony in any interference or other proceeding in which said invention or any application or patent directed thereto may be involved.

AND, we do hereby authorize and request the Commissioner of Patents of the United States to issue such Letters Patent as shall be granted upon said application or applications based thereon to said ASSIGNEE, its successors, assigns, and legal representatives;

IN TESTIMONY WHEREOF, we have hereunto set our hands and affixed our seals the date set forth below.

Inventor: John Goodchild

Commonwealth  
~~State~~ of Massachusetts  
County of

) ss.:  
)

John Goodchild

Subscribed and sworn to before me, by the above-named  
John Goodchild this 7<sup>th</sup> day of July, 1987.

Notary Public  
MY COMMISSION EXPIRES JULY 18, 1991

Inventor: Paul C. Zamecnik  
Paul C. Zamecnik

Commonwealth  
~~State~~ of Massachusetts  
County of

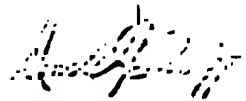
) ss.:  
)

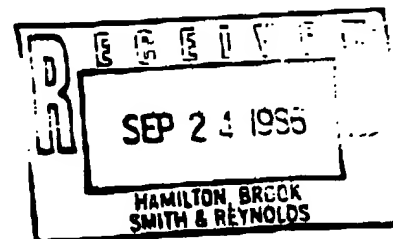
Subscribed and sworn to before me, by the above-named  
Paul C. Zamecnik this 7<sup>th</sup> day of July, 1987.

Notary Public  
MY COMMISSION EXPIRES JULY 18, 1991

RECORDED  
PATENT & TRADEMARK OFFICE

JUL 10 1987

  
NOTARY PUBLIC



TO: DAVID E. BROOK  
HAMILTON, BROOK, SMITH & REYNOLDS  
TWO MILITIA DR.,  
LEXINGTON, MA 02173

UNITED STATES PATENT AND TRADEMARK OFFICE  
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ASSIGNOR: 001 GOODCHILD, JOHN  
ASSIGNOR: 002 ZAMECNIK, PAUL C.

DOC DATE: 06/18/86  
DOC DATE: 06/18/86

RECORDATION DATE: 06/26/86 NUMBER OF PAGES: 002 REEL/FRAME 4578/0408

DIGEST: ASSIGNMENT OF ASSIGNORS INTEREST

ASSIGNEE: 501 WORCESTER FOUNDATION FOR EXPERIMENTAL BIOLOGY, 222 MAPLE AVENUE, SHREWSBURY, MA. 01545 A CORP. OF MA.

SERIAL NUMBER 6-867231 FILING DATE 05/22/86  
PATENT NUMBER ISSUE DATE 00/00/00

TITLE OF INVENTION: INHIBITION OF HTLV-III BY EXOGENOUS OLIGONUCLEOTIDES

- INVENTOR: 001 GOODCHILD, JOHN  
INVENTOR: 002 ZAMECNIK, PAUL C.



JointAssignment

WHEREAS, we, John Goodchild and Paul C. Zamechik  
have invented a certain improvement in  
INHIBITION OF HTLV-III BY EXOGENOUS OLIGONUCLEOTIDES  
described in an application for Letters Patent of the United  
States, Serial No. 867,231, filed May 23, 1986.

WHEREAS, WORCESTER FOUNDATION FOR EXPERIMENTAL BIOLOGY,  
a corporation organized and existing under the laws of the  
Commonwealth of Massachusetts, and having a usual place of  
business at 222 Maple Avenue, Shrewsbury, Massachusetts 01545  
desires to acquire an interest therein in  
accordance with agreements duly entered into with us;

NOW, THEREFORE, to all whom it may concern be it known  
that for and in consideration of the said agreements and of  
other good and valuable consideration, the receipt of which is  
hereby acknowledged, we have sold, assigned and transferred  
and by these presents do hereby sell, assign and transfer unto  
said WORCESTER FOUNDATION FOR EXPERIMENTAL BIOLOGY, its successors,  
assigns and legal representatives, the entire right, title and  
interest in and throughout the United States of America, its  
territories and all foreign countries, in and to the said  
invention as described in said application, together with the  
entire right, title and interest in and to the said applica-  
tion and such Letters Patent as may issue thereon; said  
invention, application and Letters Patent to be held and  
enjoyed by said WORCESTER FOUNDATION FOR EXPERIMENTAL BIOLOGY for  
its own use and behalf and for its successors, assigns and  
legal representatives, to the full end of the term for which  
said Letters Patent may be granted as fully and entirely as  
the same would have been held by us had this assignment and  
sale not been made; we hereby convey all rights arising under  
or pursuant to any and all international agreements, treaties  
or laws relating to the protection of industrial property by  
filing any such applications for Letters Patent. We hereby  
acknowledge that this assignment, being of the entire right,  
title and interest in and to said invention, carries with it  
the right in WORCESTER FOUNDATION FOR EXPERIMENTAL BIOLOGY  
to apply for and obtain from competent authorities in all  
countries of the world any and all Letters Patent by attorneys  
and agents of WORCESTER FOUNDATION FOR EXPERIMENTAL BIOLOGY  
selection and the right to procure the grant of all such  
Letters Patent to WORCESTER FOUNDATION FOR EXPERIMENTAL BIOLOGY  
for its own name as assignee of the entire right, title and  
interest therein.

AND, we hereby further agree for ourselves and our  
executors and administrators to execute upon request any other  
lawful documents and likewise to perform any other lawful acts  
which may be deemed necessary to secure fully the aforesaid  
invention to said WORCESTER FOUNDATION FOR EXPERIMENTAL BIOLOGY,  
its successors, assigns and legal representatives, but at its

-2-

or their expense and charges, including the execution of applications for patents in foreign countries, and the execution of substitution, reissue, divisional or continuation applications and preliminary or other statements and the giving of testimony in any interference or other proceeding in which said invention or any application or patent directed thereto may be involved.

AND, we do hereby authorize and request the Commissioner of Patents of the United States to issue such Letters Patent as shall be granted upon said application or applications based thereon to said WORCESTER FOUNDATION FOR EXPERIMENTAL BIOLOGY, its successors, assigns, and legal representatives;

IN TESTIMONY WHEREOF, we have hereunto set our hands and affixed our seals the date set forth below.

Inventor: John Goodchild  
John Goodchild

State of Massachusetts ) ss.:  
County of Worcester )

Subscribed and sworn to before me, by the above-named John Goodchild  
John Goodchild this 19th day of June, 19 86

Malcolm Cummings  
Notary Public

MY COMMISSION EXPIRES JULY 18, 1991

Inventor: Paul C. Zamecnik  
Paul C. Zamecnik

State of Massachusetts ) ss.:  
County of Worcester )

Subscribed and sworn to before me, by the above-named Paul C. Zamecnik  
Paul C. Zamecnik this 19th day of June, 19 86

Malcolm Cummings  
Notary Public

MY COMMISSION EXPIRES JULY 18, 1991

RECORDED  
& INDEXED  
PATENT & TRADEMARK OFFICE

JUN 28 1986

Paul C. Zamecnik

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